

## **TITLE 326 AIR POLLUTION CONTROL BOARD**

### **LSA Document #99-125**

#### **SUMMARY/RESPONSE TO COMMENTS FROM THE THIRD COMMENT PERIOD**

The Indiana Department of Environmental Management (IDEM) requested public comment from August 1, 2000, through August 21, 2000, on IDEM's draft rule language. IDEM received comments from the following parties:

BP Chemicals	BP
Citizens Action Coalition of Indiana	CAC
Hoosier Environmental Council	HEC
Reichhold	RHD

Following is a summary of the comments received and IDEM's responses thereto.

#### Definitions

*Comment:* We recommend adding to the “corrosion resistant resin” definition (326 IAC 20-25-2(8)(C)) as follows: “Is manufactured to an acceptable federal and industry standard for corrosion resistant or food, or potable water contact application.” (RHD)

*Response:* IDEM agrees and has added “or potable water “ to the definition of “corrosion resistant resin”, now located at 326 IAC 20-25-2(29)(A)(iii).

*Comment:* Fillers are used for several reasons and become part of the resin mixture that is pumped to the application equipment. Some resin systems have fillers added at the resin manufacturing plant and the fabricator receives the resin as a filled product. Other products are filled by the fabricator at the reinforced plastics composites fabricating facility. Therefore, we recommend removing the words “excluding any inert filler” from the definition “delivered to the applicator”. Remove the resin category, Production-Noncorrosive resistant filled resin from Tables I and Table II and allow HAP content to be calculated considering fillers. (RHD)

*Response:* In the Composites Fabricators Association (CFA) unified emission factors that IDEM requires to be used in calculating emissions from open molding, a resin’s potential to emit is based on the HAP content prior to the addition of fillers. There is a large weight range of fillers used in the industry and it is necessary to regulate resins prior to the addition of fillers to ensure emission limits are equivalent for all sources. Additionally, the proposed national emission standards for hazardous air

pollutants for boat manufacturing has language to calculate HAP content before any filler is added. The definition of inert filler has been clarified to exclude pigments.

*Comment:* The hazardous air pollutant (HAP) monomer content should be calculated based on the “as delivered to the applicator” condition of the resin system. If the weight percent of the HAP monomer in the resin system is increased or decreased before the mixture reaches the application equipment, the change should be noted and a revised “HAP monomer content” calculated. Therefore, we recommend removing the words “and excluding any inert filler from the definition of “HAP monomer content”. (RHD)

*Response:* The definitions of “HAP monomer content” and “delivered to the applicator” requires that the HAP monomer content be calculated as delivered to the applicator to account for HAP additions prior to application. However, as stated in the previous response, inert fillers must be excluded from the calculations.

*Comment:* A definition of high strength products should be added and defined as those that need resin with casting (nonreinforced) tensile strength of ten thousand pounds per square inch (10, 000 psi) or higher when tested according to ASTM D638. (BP)(RHD)

Resins used for high strength components in boats need higher HAP content than thirty-five percent (35%) to meet strength performance requirements. We request that you allow the use of resins with forty-eight percent (48%) HAP where special performance criteria are needed or desired by a boat builder. This could be done by including high strength components with the corrosion resistant and skin coat category. (RHD)

*Response:* IDEM agrees and high tensile strength has been included in the definition of specialty product resins at 326 IAC 20-25-2(29)(B). Specialty product resins have been added to Tables I and II with forty-eight percent (48%) HAP monomer content and nonatomized application technology.

*Comment:* A definition for “flame resistant product” should be added. Flame resistant products should be defined as those able to produce a final product with a flame spread of 75 or less when tested according to ASTM E-84, or smoke generation of 450 or less when tested by ASTM E-84. (RHD)

*Response:* A definition of “Class I flame and smoke products” has been added using the wording suggested by the Composite Fabricators Association.

*Comment:* A definition for “shrinkage controlled resins” should be added. Shrinkage controlled products should be defined as those providing less than one and five tenths percent (1.5 %) shrinkage when tested in neat (unfilled, nonreinforced) form by ASTM D-2566. (RHD)

*Response:* A definition of shrinkage controlled resin has been added at 326 IAC 20-25(28).

*Comment:* A definition of heat resistant product should be added and defined as those needing resins with Heat Deflection Temperature of one hundred (100) degrees Centigrade or higher when tested according to ASTM D648. (RHD)

*Response:* This term is not used in the rule language, IDEM has received no previous comments at any of the workgroup meetings or during the comment periods from Indiana companies, and IDEM does not believe this additional category is warranted. Therefore, this definition has not been added. Compliance can be achieved with emissions averaging.

*Comment:* Establish a specialty products definition. Less than twenty percent (20%) of resin and gel coat is used for products needing high levels of heat stability, high strength and/or flame resistance, and controlled shrinkage. For these specialty products, markets drive resin chemistry and HAP content. Specialty products and gel coats are more expensive and composites manufacturers will not pay the extra cost for these specialty resins and gel coats unless the higher level of performance is really needed. (RHD)

*Response:* "Specialty products" has been added to the definitions to include products made with resins for high strength and military specifications. High strength resins are expected to be added to the federal maximum achievable control technology standard for this industry and military specifications are accompanied with documentation for specifications and standards. A shrinkage controlled resin is defined separately from specialty products and heat resistant resins are not included in the specialty product resin definition.

### Emission Standards

*Comment:* HAP monomer content of thirty-eight percent (38%) for Production-Corrosion Resistant resin (Table I) is too low and should be changed to forty-eight percent (48%). This would be consistent with the developing federal MACT rules and other state rules. Monomer content is not really a control for the manufacture of corrosion resistant products. We agree with the approach that IDEM has taken in Table II for Production-Corrosion Resistant and skin coat with setting a HAP limit of forty-eight percent (48%). (RHD)

A forty-eight percent (48%) hazardous air pollutant content is needed for corrosion resins because styrene imparts desirable properties to the product and reducing its concentration also reduces corrosion resistance and other properties. Therefore, the regulation should contain forty-eight percent (48%) HAP monomer content for corrosion resistant resins in Table I. (BP)

*Response:* The U. S. EPA point value system indicates that an emission standard of thirty-eight percent (38%) resin applied with atomized technology is equivalent to forty-eight percent (48%) resin applied with nonatomized technology. Since the emission standards are the same and in response to comments, the rule has been changed for corrosion resistant resins in Table I to forty-eight percent (48%) HAP monomer content applied with nonatomizing technology. "Corrosion resistant resins" are

now included in the definition of speciality products.

*Comment:* Higher HAP limits are needed for specialty products in Tables I and Table II. Several “noncorrosion” products need resins with higher HAP contents. For example, products needed to meet the following criteria:

- \* Products that require Class I and II Fire or Smoke Ratings need a HAP limit of forty-two percent (42%).
- \* Products that require controlled shrinkage less than one and five tenths percent (1.5%) need a HAP limit of fifty-two percent (52%).
- \* Products that require high strength of ten thousand pounds per square inch (10,000 psi) tensile need a HAP limit of forty-eight percent (48%).

Products that require high heat resistance need a HAP limit of forty-eight percent (48%). Controlled shrinkage resins rely on a sophisticated balance of solution thermodynamics that permits three phases (thermosetting polymer, styreneated thermoplastic and styrene monomer) to form a stable solution at room temperature yet phase separate under the relatively mild thermal conditions present during molding operations. It is not possible to change the HAP monomer content of these products without fatally compromising their performance, shelf stability or both. We are requesting that “controlled shrinkage” resins be exempted from the HAP content requirements in Tables I and II, or that a specialty resin category (“controlled shrinkage”) be created with a HAP content limit of fifty-two percent (52%) and added to Tables I and II. This product is a filled system. A filler material is added to the resin at the rate of forty-five to fifty percent (45-50%) (by weight) solids before it is applied. The “as applied” (“as delivered to the applicator”) HAP content of this system is twenty-five to twenty-eight percent (25-28%). Because the product is filled, forty-five to fifty percent (45-50%), only about half the amount of resin is used to make the part. The available HAP for emission is twenty five to twenty eight percent (25-28%) (wt) as applied. (RHD)

*Response:* High strength resins are included in the specialty product resin definition with forty eight percent (48%) HAP monomer content and nonatomized application in Tables I and II. A Class I flame and smoke category has been included in a U. S. EPA draft MACT floor and this category has been added to Table I that allows a sixty percent (60%) HAP monomer content resin. Shrinkage controlled resin is included in Table I with fifty-two percent (52%) HAP monomer content. IDEM has received no other comments from Indiana companies for high heat resin and does not propose adding these categories because sufficient information to included these categories has not been provided.

*Comment:* IDEM should abandon styrene content limits for tooling resins. In tooling applications, service life and performance properties such as dimensional stability, heat resistance, controlled shrinkage and chemical resistance are critical. The category for tooling resin should be removed from Table I and Table II. Shops that specialize in tooling will not have the opportunity to do averaging and will face disproportionate consequences from this legislation unless it is altered. (RHD)

*Response:* IDEM has worked with the industry regarding the proposed limits for tooling resin and gel coat and believes the limitations are reasonable. Regulating tooling materials is consistent with best available control technology determinations and the proposed federal regulation for boat manufacturing.

*Comment:* We disagree with the IDEM response that emissions averaging will give sources the flexibility to use different products without raising the HAP content of a particular subcategory. It is our opinion that few fabricators will use averaging because of the additional record keeping and calculating requirements. (RHD)

*Response:* IDEM believes that the emission standards reflect reasonably achievable standards for most sources. Averaging provides an alternative compliance method for special material needs.

*Comment:* The reinforced plastics composites industry is diverse. It does not appear that the EPA database, nor IDEM, has taken the wide diversity and performance requirements into account. The performance requirements for a sixty (60) foot yacht, a twelve (12) foot john boat, and a twenty (20) foot commercial fishing boat (salt water), are different. By lumping all production resins into a few groups and having HAP content limits based on use by a few, greatly limits the reinforced plastics composites industry diversity and limits the quality and performance characteristics that the finished products will have. The rule needs to allow more time for fabricators to switch to low styrene products so that adequate testing and performance evaluations can be performed. (RHD)

*Response:* IDEM has had extensive discussions with the National Marine Manufacturers Association as well as Indiana boat manufacturers. The rule reflects the input given to us by them, and IDEM believes that the way resins are grouped for purposes of establishing emission limits is workable for Indiana companies. Furthermore, IDEM has not heard concerns about the compliance deadline of January 1, 2002 from Indiana manufacturers and therefore believes the date is reasonable.

*Comment:* IDEM needs to offer an exemption for resin products used to meet military specification or allow a higher HAP content of forty-eight percent (48%). (RHD)

*Response:* IDEM has provided for a HAP content of forty-eight percent (48%) with nonatomized application to meet military specifications and has included military specification products in a definition of specialty product resins.

*Comment:* The addition of fillers reduces the amount of resin used in the resin system and thus reduces the amount of HAP used. Fabricators should be given credit for using filled products when trying to meet the HAP limitations in Tables I and Table II. It should be noted, however, that the use of fillers changes the chemical and physical properties of the finished part and may not be able to be used by all fabricators in all instances. (RHD)

*Response:* IDEM has not received information that adding filler to resins reduces significantly alters the emissions based on the percentage of available styrene emitted per ton of unfilled resin used. The

majority of sources subject to this rule have emission limitations in their permits and realize emissions reductions credits from fillers since they are able to produce more parts under their permit emission limits.

*Comment:* IDEM needs to offer an exemption for resins used to meet American National Standard/NSF International Standard 61. Standards 60 and 61 were developed to establish minimum requirements for the control of potential adverse human health effects from products added directly to water for its treatment, and indirectly to water via contact with treatment, storage transmission, and distribution system components. (RHD)

*Response:* The proposed rule contains a category for products subject to American National Standards Institute standards in 326 IAC 20-25-3, Table I.

### Testing Requirements

*Comment:* 326 IAC 20-25-5(c) (2) should add (C) equivalent method, upon written application by the source, the commissioner may approve an alternative test method. This will allow for new analytical procedures that may be less costly and easier to conduct to be used in the future. (RHD)

*Response:* The proposed rule has been changed to include an equivalent method.

*Comment:* Under section 326 IAC 20-25-5(c)(1), compliance certification should include a manufacturers material safety data sheet (MSDS). (RHD)

*Response:* As stated in the summary/response to comments received at the first public hearing, manufacturer's material safety data sheet has been added to section (5)(c) in addition to certified product sheets.

### Operator Training

*Comment:* Operator training is an essential component of any emission reduction effort in the styrene industry and other industries. We have seen significant emission reductions in other industries that have implemented operator training programs such as the Wood Furniture NESHAP. The Indiana Clean Manufacturing Technology and Safe Materials Institute (CMTI) has conducted a study on the effectiveness of training in reducing emissions in the fiber reinforce plastics industry which compared emissions before and after training. The study concluded that training reduces combined gel coat and resin emissions by twenty-four and eight tenth percent (24.8%). IDEM should include a training requirement in the proposed styrene rule. (CAC)(HEC)

*Response:* Studies by CFA, as well as IDEM's experience with operator training in other rules such as the wood furniture national emission standard for hazardous air pollutants, indicate that operator training reduces emissions. Proper spray operation is important to ensure that emissions reductions from

nonatomized applicators are achieved and maintained. Training on proper spray operation will help ensure that personnel do not operate equipment at pressures above manufacturers recommendations, which can produce atomized spray. Training is also important because IDEM has broadened the definition of nonatomized spray equipment to include new technologies. Operator training should not be a new burden since industry representatives have stated that they already train their employees. Therefore, IDEM agrees to include operator training in the rule (326 IAC 20-25-8), but has minimized record keeping to that which is necessary to demonstrate compliance with the rule.